

**Replacement Pages for Text on Page 2, Lines 17-20 and Page 3, Lines 1-2**

**(CLEAN FORM)**

**Brief Description of the Drawings**

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Fig. 1 is an illustration of output produced by software showing fixed-bond and delocalized-bond representations.

Fig. 2 is an illustration of output produced by software showing mesomers.

Fig. 3 is an illustration of output produced by software showing a carbene example.

Fig. 4 is an illustration of output produced by software showing an application of dekekulization to the assignment of hydrogenation isomers.

Fig. 5 is an illustration of output produced by software showing the unpredictability of heteroelement hybridization and resulting implicit hydrogen count.

Fig. 6 is an illustration of output produced by software showing the electronic/bonding environments available to a carbon atom with two delocalized attachments.

Fig. 7 is an illustration of computer data listing prevalent atomic environments and corresponding shorthand codes of the form [WXY/Z].

Fig. 8 is an illustration of output produced by software showing the atomic ESVD environments listed in Fig. 7.

Fig. 9 is an illustration of computer data listing control flags.

Fig. 10 is an illustration of output produced by software showing an example of environment development and backtracking for furan.

Fig. 11 is an illustration of computer data illustrating the meanings of bitmask bits.

Fig. 12 is an illustration of output produced by software showing an example of a path marked with atom and bond (underlined) numbers.

Fig. 13 is an illustration of computer data showing various actions possible in a step of an analysis script as shown in Fig. 14.

Fig. 14 is an illustration of computer data showing an analysis script for the strategy for the example of Fig. 12.

Fig. 15 is an illustration of output produced by software showing an example of an external bond being co-opted to serve as an additional internal single bond.

Fig. 16 is an illustration of output produced by software showing first examples relating to procedures disclosed herein.

Fig. 17 is an illustration of output produced by software showing second examples relating to procedures disclosed herein.

Fig. 18 is an illustration of output produced by software showing third examples relating to procedures disclosed herein.

Fig. 19 is an illustration of output produced by software showing fourth examples, including radical structures, relating to procedures disclosed herein.

Fig. 20 is an illustration of output produced by software showing fifth examples, including acyclic examples, relating to procedures disclosed herein.

Fig. 21 is an illustration of output produced by software showing multi-center bonds.

Fig. 22 is a flow diagram of a computer based procedure including an example of a dekekulization procedure.

Figs. 23A-23B are a flow diagram of a computer based procedure including a procedure that is included in an example of the dekekulization procedure and that is provided with information describing a chemical structure.

Fig. 24 is a flow diagram of a computer based procedure including a recursively executed procedure related to the procedure of Figs. 23A-23B.

Figs. 25A-25C are a flow diagram of a computer based procedure including an ESVD assignment procedure.

Figs. 26A-26B are a flow diagram of a computer based procedure including a bond order assignment procedure.

Fig. 27 is a flow diagram of a computer based procedure including a procedure for verifying an atom data construct as complete.

Fig. 28 is a flow diagram of a computer based procedure including a procedure for determining whether a state representing a complete traversal of a path offers a perfect solution.

Fig. 29 is a flow diagram of a computer based procedure including a procedure for calculating an electronic state and valence distribution screening bitmask for an electronic state and valence distribution.

Fig. 30 is a flow diagram of a computer based procedure including a procedure for calculating an atom screening bitmask.

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Figs. 31A-31C are a flow diagram of a computer based procedure including a procedure for rating or scoring a state.

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